

**CLAIMS**

1. A method treating a subject who has developed or is at risk of developing at least one of high blood pressure, Alzheimer's Disease, Obesity, Diabetes Type II, Sickle Cell  
5 Anemia, Preeclampsia, Sudden Infant Death Syndrome, or Vascular Disease comprising:  
positioning ammonia oxidizing bacteria in close proximity to the subject.

2. The method of claim 1, wherein the subject does not otherwise need nitric oxide.

10 3. The method of claim 1, wherein the act of positioning ammonia oxidizing bacteria in close proximity to the subject comprises applying the ammonia oxidizing bacteria to a surface of the subject in an effective amount to cause the bacteria to metabolize any of ammonia, ammonium salts, or urea on the surface into any of nitric oxide, nitric oxide precursors, or combinations thereof.

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4. The method of claim 1 wherein the act of positioning the bacteria occurs prior to sleep.

5. The method of claim 3, wherein the act of positioning the bacteria comprises applying  
20 the bacteria in a suitable carrier.

6. The method of claim 1, wherein the act of positioning the bacteria comprises positioning a bacteria selected from the group consisting of any of Nitrosomonas, Nitrosococcus, Nitrospira, Nitrosocystis, Nitrosolobus, Nitrosovibrio, and  
25 combinations thereof.

7. The method of claim 3, wherein the act of applying the bacteria to a surface comprises applying the bacteria to skin, hair, or a combination thereof.

30 8. The method of claim 1, wherein the act of applying the bacteria comprises applying a substantially pure bacteria.

9. The method of claim 1, wherein the act of applying the bacteria comprises:  
applying the bacteria to an article; and  
contacting the article with the surface of the subject.
- 5 10. The method of claim 1, further comprising the act of applying a compound selected from any of a component of perspiration, urea, nitrite, lactic acid, nitrate, salt, iron salts, ammonium salts, and combinations thereof, to the surface of the subject .
11. The method of claim 6, further comprising:  
10 administering to the surface of the subject at least one of urea or metal salts to the surface of the subject in an effective amount to stimulate the growth of the bacteria.
12. The method of claim 10, wherein the act of contacting the article with the surface of the subject further comprises contacting the bacteria with the surface of the subject.
- 15 13. The method of claim 1, wherein the act of administering the bacteria comprises applying the bacteria to a subject that is a non-human vertebrate.
14. A preparation for treating a subject who has developed or is at risk of developing at  
20 least one of high blood pressure, Alzheimer's Disease, Obesity, Diabetes Type II, Sickle Cell Anemia, Preeclampsia, Sudden Infant Death Syndrome, or Vascular Disease comprising:  
an active culture of nitric oxide producing bacteria.
- 25 15. The preparation of claim 14, where said nitric oxide producing bacteria are autotrophic ammonia oxidizing bacteria.
16. The preparation of claim 14, where said nitric oxide producing bacteria are combined with a substrate from which said bacteria produce nitric oxide.

17. The preparation of claim 14, wherein the nitric oxide producing bacteria are combined with a substrate chosen from the list of: ammonia, ammonium salts, urea, nitrite salts, nitrate salts.
- 5 18. The preparation of claim 14, wherein the preparation is any of a cosmetic composition, a body deodorant, or an athletic preparation.
- 10 19. The preparation of claim 15, wherein the bacteria is selected from any of Nitrosomonas, Nitrosococcus, Nitrospira, Nitrosocystis, Nitrosolobus, Nitrosovibrio, and combinations thereof.
- 15 20. The preparation of claim 18, further comprising at least one component selected from any of water, mineral oil, coloring agent, perfume, aloe, glycerin, sodium chloride, pH buffers, UV absorbing agents, silicone oil, natural oil, vitamin E, herbal concentrates, Lactic acid, citric acid, talc, clay, calcium carbonate, magnesium carbonate, zinc oxide, starch, urea, nitrite, nitrate, iron salts, ammonium salts, and combinations thereof.
- 20 21. The preparation of claim 18, wherein the preparation is any of powder, cream, stick, aerosol, or salve.
22. The preparation of claim 14, wherein the subject is a human being.
23. The preparation of claim 16, further comprising:  
at least one compound selected from any of urea, ammonium salts, sodium,  
25 potassium, magnesium, calcium, phosphate, chloride, sulfate, trace mineral salts, iron, copper, zinc, cobalt, manganese, molybdenum, buffers, and combinations thereof.
24. A method of increasing basal nitric oxide in a subject comprising applying  
positioning ammonia oxidizing bacteria in close proximity to the subject.
- 30 25. The method of claim 24, wherein the act of positioning the bacteria comprises applying the bacteria in a suitable carrier.

26. The method of claim 24, wherein the act of positioning the bacteria comprises positioning a bacteria selected from the group consisting of any of Nitrosomonas, Nitrosococcus, Nitrospira, Nitrosocystis, Nitrosolobus, Nitrosovibrio, and  
5 combinations thereof.

27. The method of claim 24, wherein the act of applying the bacteria to a surface comprises applying the bacteria to skin, hair, or a combination thereof.

10 28. The method of claim 24, further comprising the act of applying a compound selected from any of a component of perspiration, urea, nitrite, lactic acid, nitrate, salt, iron salts, ammonium salts, and combinations thereof, to the surface of the subject .

15 29. A method of treating a wound in a subject comprising applying the ammonia oxidizing bacteria to a wound of the subject in an effective amount to cause the bacteria to metabolize any of ammonia, ammonium salts, or urea on the surface into any of nitric oxide, nitric oxide precursors, or combinations thereof.

20 30. The method of claim 29, wherein the bacteria is selected from the group consisting of any of Nitrosomonas, Nitrosococcus, Nitrospira, Nitrosocystis, Nitrosolobus, Nitrosovibrio, and combinations thereof.